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been described. The typical nerve is a composite made up from the consideration of nerves at several levels, and finds its best exemplification in the cranial region which is apparently most modified. The central termination of the other two splanchnic groups has but very little positive evidence in favor of it thus far. In explaining the homologies of the cranial nerves, it is without doubt the nerves of special sense that are the most difficult to bring into line; but it certainly is an open question whether any arrangement of the nerves which leaves them out of account, as that of Gaskell does, is to be looked on as more than tentative. Supposing, however, that these criticisms should be supported by the results of future experiments, there would still remain a most important mass of information which has been the direct outcome of Gaskell's work. In the first place, the idea of anabolic and katabolic nerves, whatever the extent of its application, has a very considerable explaining power. To the neurologists, however, the fact that the so-called sympathetic nervous system can be shown to be an integral part of the spinal system, and not something independent, is of the utmost consequence; for not only is it a distinct anatomical advance, but, like all well grounded anatomical ideas, it disposes of much antiquated physiology of the region. The light which these ideas throw on the cranial nerves has certainly made it possible to attempt some order among this difficult group, and whether Gaskell is exactly on the right track or not, it seems clear that their illuminating power has not been exhausted.

Anleitung beim Studium des Baues der nervösen Centralorgane im gesunden und kranken Zustande. Dr. HEINRICH OBERSTEINER. Leipzig und Wien: Toeplitz & Deuticke, 1888.

In discussing a book that thus purports to be an introduction to the study of the central nervous system, the present state of the literature must be kept in mind. With the development of histological technique, the finer anatomy of the brain and cord began to be studied, and accordingly the last thirty years embrace most of the papers on minute structure. Of course this branch has been subject to the same laws that apply to all histological work, and the rapid increase of contributions in the later years of this period has been enough to appall any author contemplating a book that should represent the present state of knowledge on the subject. The disconnected character of the majority of the contributions which state the anatomical conclusions of the author and leave to some future compiler to knit the results together with those of others, is but the consequence of the comparative absence of general notions under which these special observations can be classified, and of course makes compilation most difficult. Various authors have attacked the problem in different ways. Schwalbe has produced something like an encyclopaedia of the subject. Henle, Meynert, and Wernicke have given rather individual accounts, less controlled by the views of others than is desirable in a manual. The excellent "Zehn Vorlesungen" of Efinger lacked sufficient detail for use in the laboratory, and, it should be added, was not intended for that purpose. There was room therefore, and need as well, for a book that should give a general view and yet contain sufficient detailed description to be used in the laboratory beside the microscope. No doubt Obersteiner is not the first man who has felt the desirability of such a

work, but, to most men, the combination of the continuous narrative style which was demanded in such a book, with a full treatment of the evidence, seemed quite incompatible. In meeting this difficulty, Obersteiner has followed the plan of taking what seemed to him the best view, and presenting it, as a rule, with little comment, only now and then stating the more important deviations from it. The plan is simple enough, but to carry it out to the satisfaction of the reader and the illumination of the subject implies a delicacy of anatomical instinct that is, to say the least, rare.

The book is divided into seven sections. The first discusses the methods of investigation under the five subheads of fibering, serial sections, pathological changes and arrested development, the method of comparative anatomy, and the experimental-physiological method. The value of each is briefly stated. When speaking of the method of serial sections he describes the histological technique so far as it applies to the nervous system, and gives a very compact statement of the methods of staining, etc. There is a blemish in the presentation of some formulae, however, that should not occur in a book of so excellent a character, that is, the "cook book" recipes for making various solutions. For example, one is instructed (p. 11) to take "as much haematoxylin as will go on the point of a knife." The thing is too trivial for further comment, but certainly important enough to deserve correction. In explanation of his division of methods, it may be said that by the experimental-physiological he means to describe such a method as was used by Ferrier and Yeo in studying the distribution of the spinal nerves in the monkey, and not the methods of degeneration which are sometimes understood by that term. Further, the methods of v. Gudden, Waller, and Flechsig are all summed under the general head of pathological changes and arrested development.

In the second section, after a couple of pages on the vesicles of the brain, is a description of the gross anatomy of the brain, most admirably illustrated, and followed by an account of the convolutions, in which Ecker is mainly followed. In reading this section the attention is at once fixed by the lucid style of the author, which gives to the descriptions a simplicity and clearness that is not always a distinguishing feature of books on this subject. The impression is unavoidable that the man is writing with the specimen before him. This charming clearness comes out even more strikingly later on, but it may be sufficient to mention it here, adding, though not without fear of a smile from the incredulous, that, by virtue of the form in which it is here presented, the anatomy of the nervous system becomes positively entertaining. It has previously been maintained in these columns that the proper understanding of the structure of the adult brain could not be gained without a clear grasp of its embryology. The absence of a sufficient discussion of the development of the brain seems to us the main and the sole important defect in the book. Perhaps the fact that one may read the book without feeling the lack of the information here demanded is in itself an answer to the above criticism, but we cannot suppress the feeling that a discussion of the embryology would have been of much value to those who will use the book. The descriptions of the plates are full and clear, but there is no order in the arrangement of the descriptive terms, and one is often quite discouraged in searching for a name. Wilder seems to have reached the best solution of

this problem, which is really a serious one for all parties concerned : he has arranged the terms alphabetically. It would certainly save time and vexation if some such plan could be adopted here.

In the third section the histological elements are taken up, the description of the nervous elements being followed by that of the non-nervous. Obersteiner here pursues the very instructive plan of describing at the end of each subdivision the pathological changes to which the element is liable. Nothing could be more to the advantage of the student, for not only is pathological material the most abundantly used in the laboratory, but it is as a rule the most instructive, and these few hints as to the significance of the changes are highly useful. The plan of giving the pathological variations is followed in the later sections, and is rather a distinctive feature of the book. In treating of the nervous elements he fails to use the idea that the nerve fiber is an outgrowth of the nerve cell, and that therefore fiber and cell form a unit, but takes rather the traditional course of considering them separately, without indicating such a connection. This is the more remarkable, since not only are the views expressed based, as a rule, on the very latest results, but all the way through there is an evident desire to give prominence to such ideas as have a generalizing value. It is in this section that the results obtained by Golgi come in for discussion. He follows that author on the relations of the protoplasmic processes of the cells and the lack of direct anastomosis between them, but seems almost ultra-conservative on the question of the axis cylinder as brought out by Golgi's method.

The finer structure of the spinal cord, which is the subject of the fourth section, contains the unorthodox argument for the origin of the fibers of the posterior spinal roots directly from cells and not indirectly from the fiber network, as is usually taught. It seems probable that if the facts are regarded in a certain way, Obersteiner's view should be added to the older one, but it can hardly be granted that the new view displaces the old one, as the paragraph indicates.

The next forty pages, forming the fifth section of the book, will be without doubt the most useful portion of the book. It contains the description of some twenty excellent woodcuts based on carmine preparations. The first cut represents a level of the cord just at the commencement of the crossing of the pyramids, and the last is through the middle of the optic thalami, the intermediate sections being taken at the most instructive levels. The location of each section is designated by lines transverse to the representation of the medulla and the basal ganglia. In the cuts themselves one half is made schematic and the other a copy of the actual preparation ; a combination which has much in its favor. It is in this section especially that the freshness of the descriptions offers such a pleasant contrast to the portion of most treatises with which it can be compared.

As might be expected, the sixth section is the most extensive, since it comprises a discussion of the tracts in the cord, the cranial nerves, the forebrain, etc. It is in discussing the cranial nerves that there is the greatest opportunity for the display of an anatomical instinct which may enable one to select from the mass of contradictory results, all of which seem about equally well supported, those which are really valuable. The narrative here is crisp and clear, and the confusion brought about by a multitude of names for

the same thing is quite dissipated by the simple device of describing the thing itself and leaving the names quite at one side. There are probably several people in the world who will feel greatly indebted to Obersteiner for his description of the lemniscus and of the centers of the cranial nerves. This is, perhaps, the place where the kind of evidence which the author is willing to accept is most clearly recognizable. We do not know that Obersteiner was a pupil of Meynert, but certain it is that he has not that feeling of skepticism towards conclusions based on observation of the normal tissue which is felt by the followers of von Gudden, for example. He is conservative always, but at the same time is willing to interpret much that will have to be demonstrated at some later day. The book terminates with the seventh section, on the envelopes of the brain, followed by a good index.

By what has just been said concerning the kind of evidence that appeals to our author, we would not be understood to impute one-sidedness, save so far as every man has some bias in that he does not exactly agree with his neighbor. It is eminently a spirit of fairness that characterizes the book, and it is quite free from the narrowness of a special school. No one method or point of view can give a satisfactory survey of the entire field, and Obersteiner is far beyond the not uncommon attitude of mind of those who mingle patriotism with science, and look upon the method discovered in their town as the only correct one, or at least the most correct. The book, then, is a laboratory manual of unusual excellence, and, at the moment, is the only one of its kind.

Pathologie und Therapie der Nervenkrankheiten für Aerzte und Studierende. Dr. LUDWIG HIRT. Erste Hälfte, S. 256. Mit zahlreichen Holzschnitten. Wien und Leipzig: Urban und Schwarzenberg, 1888.

This first half of the book deals with the brain, and is to be followed by a second half, of the same size and character, on the spinal cord. Some description of the first half will show the character of the book, for the portion which is to follow is to have the same general construction. The author has made his compilation compact, and avoids the discussion of the more unsettled questions. The arrangement is highly systematic. There are three sections, dealing respectively with the diseases of the brain envelopes, the cranial nerves, and the brain substance; each cranial nerve, for example, is discussed in a separate chapter. The chapter is opened by a brief anatomical description, followed by the diseases, diagnosis and treatment, and terminated with a very fair collection of references to the literature. The book is well illustrated throughout, by cuts from standard works and a few that are original.

On Some Results obtained by the Atrophy Method. E. C. SPITZKA and R. MOLLENHAUER. Journ. of Nervous and Mental Disease, N. S. Vol. XIII, No. 6, June, 1888.

In a kitten two days old the left crus cerebri was severed by means of a cataract needle, which was inserted through the skull and pressed downwards and outwards at a point in front of the anterior pair of the corpora quadrigemina. The animal was killed just ninety days later. At the time of operation it was two days old and